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Functional Design
PUBLIC CONSULTATION REPORT
April 2009

You received a copy of the Northland Drive / 20 Avenue Functional Planning Study Executive Summary at the April 20, 2009 meeting. Please refer to this copy or you may find a copy of the Northland Drive / 20 Avenue Functional Study Executive Summary on our website at:
<http://www.reddeer.ca/City+Projects/Projects+and+Initiatives/Northland+Drive+20+Avenue+Functional+Design.htm>

NORTHLAND DRIVE / 20 AVENUE FUNCTIONAL DESIGN

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INTRODUCTION AND REPORT STRUCTURE

The City of Red Deer, in partnership with Alberta Infrastructure and Transportation, is preparing a functional design that would see Northland Drive / 20 Avenue planned as an urban expressway. The expressway will provide a route around the north, east and south sides of the city. It includes portions of Highway 11A starting on the east side of the interchange on the QE II Highway, extends east across the river to 20 Avenue, south to connect to McKenzie Road and west to the QE II Highway. Proposed designs will also see a 67 Street and 30 Avenue intersection upgrade and extensions that connect to the new roadway.

Functional design is a key part of the overall process to plan and construct new roads serving the community. It includes detailed investigations and decisions regarding such things as the number and type of traffic lanes, design of intersections, placement of traffic signals, location of sidewalks, pedestrian and bicycle facilities and amount of land needed to fit the future roadway. For this project, some key issues that must be investigated include two railway overpasses, a new bridge over the Red Deer River, road construction on the river valley slopes and possible intersection and interchanges.

The public consultation portion of the functional design started in May 2007 with The City and Stantec Consulting assisted by Parkland Community Planning Services.

The purpose of this report is to provide a description of the major elements of the public consultation process that was used in support of the functional design study and provide a summary of the input received. The summary of input focuses on the major points and themes offered during the process. This is accompanied by Administration comments on each major theme.

OVERVIEW OF PUBLIC CONSULTATION PROCESS

Initial Contact with Landowners

In May 2007, business owners and landowners along the route of the expressway were contacted in writing about the project and the planned landowner and public input opportunities. The letter included a map showing the general route of the expressway in relation to their properties. A total of 134 properties were involved with the vast majority of these located in the County. Properties not impacted by a possible need for right-of-way or located behind a landscaped berm, installed as part of the earlier planning for the expressway (e.g. Deer Park neighbourhood), were not included in the group that was contacted.



One-to-One Contact with Select Landowners

Recognizing that some landowners will be impacted more immediately than others due to the anticipated phasing of construction of the expressway, City staff began meeting with select landowners on a one-to-one basis. This mainly involved those landowners whose property will need to be acquired by The City for road right-of-way and where access changes may have significant impacts on the current use of a property. Meetings with landowners started in December 2006 and are ongoing.

Landowner Meeting

A landowner meeting was held on Wednesday, April 2, 2008 from 3:30 pm to 9:00 pm at the Harvest Centre on the Westerner Grounds. This was a "by invitation" meeting for the 134 properties that are impacted by the road alignment. The meeting consisted of an open house using displays and project staff available for one-to-one or small group discussions. It also involved delivery of the same presentation at two separate times with each presentation followed by a group question, answer and comment session.

As landowners arrived at the meeting, an information package was provided. This package included a text description of the key items shown in the functional design drawings, a drawing showing the anticipated timing of constructing segments of the expressway, and the functional design drawings adjacent the landowners' property. The information package was mailed to those landowners who did not attend.

Focus Group with ReThink Red Deer

A focus group session was held on Tuesday, April 8, 2008 for interested representatives of ReThink Red Deer. The intent was to showcase the design of the roadway and obtain their feedback given the group's interest in general city planning and transportation planning issues. The session involved a presentation by City and Project staff followed by an opportunity for questions and discussion.

Focus Group with Red Deer River Naturalists

A focus group session was held during the evening of Wednesday, April 9, 2008 with members of Red Deer River Naturalists (RDRN). The intent was to showcase the design of the roadway and obtain their feedback given the group's interest in planning, natural areas and environmental issues. The session involved a presentation by City and Project staff followed by an opportunity for questions and discussion.



Information on City Website

The City's website was used to provide some background about the project, information about key elements of the proposed design, and ways to obtain more information and offer comments. Due to the volume of design drawings these could not be placed on the website. Information relating to the approximate timing of construction, the need for the project, and the project objectives was available. In addition, a Q and A Backgrounder addressed some of the main issues that must be managed in the design and common questions about key issues (e.g. accommodating wildlife).

Open House and Public Meeting

An open house and public meeting was held on Tuesday, April 22, 2008 from 3:30 pm to 9:00 pm at the Red Deer Lodge. The meeting was broadly advertised as the intended audience was all landowners and interested members of the public. The meeting consisted of an open house using displays and project staff available for one-to-one or small group discussions. A presentation on the functional design was delivered followed by a group question, answer and comment session.

The open house and public meeting was advertised through The City's website, news article/item coverage in the local print and voice media, and display advertisements in the Red Deer Advocate. Door to door delivery of flyers was undertaken for 500 houses in the built neighbourhoods within 100m of the west side of 20 Avenue. A separate letter notice was sent to all those invited to the earlier landowner meeting.

INPUT RECEIVED ON PROPOSED DESIGN

Copies of all responses received, through comment forms, letters or email, are contained in Appendix A. The issues and comments offered in relation to the Recommended Design through the landowner meeting, focus group sessions, and open house and public meeting are summarized below.

Landowner Meeting – April 2, 2008

A total of 69 individuals signed in as attendees of the landowner meeting. As each landowner arrived they were provided with a set of drawings showing the specifics of the road design closest to or impacting their property. Forty-nine (49) of the 134 packages were picked up over the course of the landowner meeting. The first presentation and question session starting at 5:30 pm involved 39 participants and the second presentation and question session starting at 7:30 pm involved 23 participants.



Landowners were invited to fill in and leave or send in comment sheets. A total of 8 comment forms, letters and emails were received. The content was as follows:

1. Strongly suggest that the east extension of 67 Street along Township Road 384 run on the land south of the existing road as this is farmland and will not cut through my acreage. There are no houses on that stretch on the south side and it does not make sense to divide my parcel for the road.
2. The anticipated land uses on the Lansdowne property, located adjacent to Hwy. 11A on the north side and the west side of the C&E Trail, is commercial and multi family residential; No utility stations, such as a sanitary lift station, will be located on our property.
3. The City of Red Deer should prepare a legal survey plan, at their cost, indicating the road right of way land requirements including back sloping areas, on the Lansdowne property and enter into negotiations to purchase this land at fair market value, and Lansdowne will continue to have the opportunity for input into the transportation plan for the bypass/ring road along Hwy 11A in order to protect and secure the best access and egress points to the Lansdowne property.
4. Move it half a mile to one mile east.
5. I would like more information as to what to expect when the highway is anticipated to be constructed in our yard in 2017. What is the process and our options for moving, selling, who determines the value, are dates and amounts negotiable, etc? I understand 3 years prior to construction we will be in contact. Maybe we don't want to wait and stay until then if we feel the process is something we don't want to go through.
6. I like the design and I believe that the city needs the ring road. The bridge over Gaetz is a good idea.
7. Great. Great presentation. Good people.
8. "Northland" Drive should be named Northey Drive to honor this long time resident family who's property the drive is going through.
9. How will the City Assessment Department adjust our property assessment with the decreased market value due to the traffic and noise?
10. Not impressed with the tie in to the existing roads at the point where 20 Avenue curves and becomes McKenzie Road.
11. Interested in the option of eliminating the proposed right-in/right-out at 55 Street and 20 Avenue in favour of using the proposed all-directional intersection to the



north of 55 Street to serve the future Timber Ridge neighbourhood and the Rosedale neighbourhood.

Focus Group with ReThink Red Deer – April 8, 2008

A focus group session was arranged for members of ReThink Red Deer to showcase the design of the roadway and obtain their feedback. Only one representative of the group was able to attend. The session entailed a presentation and walk through of the design followed by general discussion.

The following highlights and questions are drawn from the general discussion:

1. Does the modeling that was done for this roadway show a positive impact, such as reduced traffic, on the other roads in the city?
2. Would a dedicated light rail line be possible in the future down the central median of the roadway?
3. How will traffic be re-routed when 55 Street becomes a right-in/right-out onto 20 Avenue in the future?
4. More emphasis is needed on pedestrians and pedestrian facilities in the presentation materials. It is difficult to make out the silver colour line showing the sidewalks/trails especially at key locations such as north to south crossings at the Gaetz/Highway 11A intersection.
5. Thought should be given to hosting a second open house for those who are not able to attend on Earth Day.
6. Explain the relation between the proposed expressway and the future possibilities for bus rapid transit or general transit improvements.

Focus Group with Red Deer River Naturalists – April 9, 2008

A focus group session was arranged for representatives of the Red Deer River Naturalists (RDRN) to showcase the design of the roadway and obtain their feedback. Seven representatives of the group were able to attend. The session entailed a presentation and walk through of the design followed by general discussion.

The following highlights and questions are drawn from the general discussion:

1. How was the alignment of the road selected? The project looks like it is already decided.



2. How accurate is the computer model used to generate the traffic predictions? Is it close to reality? What are the main assumptions? Does it contemplate changes in how people choose to move about?
3. The crossing over Piper Creek south of Delburne Road needs to be shown on the drawing.
4. What is the role of investment in transit and possible changes in road planning to account for transit?
5. What will the trail along the expressway look like?
6. Has the impact on Slack Slough been taken into account? There is a need to maintain public access to the shore of the slough.
7. How will the pedestrian trails be designed to create safe places for pedestrians to cross the roadways?
8. Group is interested in making sure that there is a focus on managed (likely slower) growth and public transit along with preservation of natural features, good parks, keeping wildlife corridors and habitat. Could more of a fly-over be created over the wildlife areas? Shouldn't crossings for wildlife go over the road rather than under?
9. Concerned that wildlife crossings and features to make it easier for the wildlife to cross the road will be the first items to be cut out of the project budget due to cost considerations.
10. The approach to selecting the expressway route should have first focused on avoiding the natural areas altogether. If this is not possible, then look at mitigating the effects of going through the natural area. Any natural areas or amenities lost should be compensated for/replaced to offset the damage. The project should be making a commitment to compensate for loss of natural areas. Perhaps the Parks Department can make some suggestions about possible locations and approach.
11. The human activity under the proposed bridge should be directed to one side so the other side can be left for wildlife. Moose will be a big challenge in this area as they move through frequently. The fence along the road is a good idea but "jump out" points should be added.
12. The City should do long term monitoring to study and track the movement of wildlife.
13. One option would be to look into sensors that detect wildlife movements and then trigger warning lights to alert drivers of the presence of wildlife near the road.



14. The opportunities for preservation of natural areas are disappearing rapidly. Large blocks of native vegetation are disappearing. The City should be acquiring natural areas. In this case, a fly-over should be put in to leave the natural area as intact as possible.
15. Suggest that traffic be directed to use Riverside Drive and then cross on existing 67 Street bridge rather than building a new river crossing.
16. Use foresight. Build a fly-over – go over the entire river valley. The issue comes down to money versus nature. We need to start valuing Waskasoo Park as natural heritage.
17. Wildlife along the trails in the park system is part of the attraction. Don't want to see them driven off.
18. Why isn't \$88 million being spent on public transit?

Following the focus group session, the Red Deer River Naturalists forwarded additional written comments and suggestions. A copy of the submitted letter is found in Appendix A with the other written submissions that were received. The main points offered by the RDRN are paraphrased below:

1. The amount of green space and protected natural areas in Red Deer is not keeping pace with the city's increase in population or the expansion of other community infrastructure.
2. The City needs to be more committed to, and follow through more on, the protection of significant wildlife corridors.
3. The Pines escarpment (west side of the river valley) needs a wildlife route. The proposed widening of the railway overpass to allow wildlife to have a crossing point under Northland Drive must be done.
4. The Spruce Woods area (east side of the river valley) is important as a wildlife route and habitat. A fly-over or bridge should be used rather than a cut and fill embankment to create wildlife routes under Northland Drive and limit the impact of embankments on the treed area along the road alignment.
5. Wildlife corridor features such as extended bridges, widened overpasses and dedicated underpasses seem to be the first items cut from these types of projects when concerns over cost come up. If preservation of natural areas and expanding the park system is important to Red Deer, The City must be prepared to pay the extra cost of doing it right using innovative best practice strategies.



6. The expressway crossing over "Timber Creek" (tree lined ravine containing an intermittent drainage course and running from east side of river valley to the alignment of 20 Avenue to the east) creates a barrier to wildlife by cutting off the connection between "Timber Creek" and the wetland area on the south side of the road alignment.
7. The extension of 20 Avenue appears to disrupt or destroy a wetland and tree stand in the vicinity of 20 Avenue and 19 Street.
8. The crossing of McKenzie Road over Piper Creek has the potential to create another barrier to wildlife; adding to the crossings at Delburne Road, possibly Molly Banister and 32 Street.
9. Access to and from the interpretative viewing deck, parking lot and trail around Slack's Slough needs to be addressed and drainage courses feeding into Slack's Slough need to be protected.

Open House and Public Meeting – April 22, 2008

An open house and public meeting was held on Tuesday, April 22, 2008 from 3:30 pm to 9:00 pm at the Red Deer Lodge. The meeting was broadly advertised as the intended audience was all landowners and interested members of the public. The meeting consisted of an open house using displays and project staff available for one-to-one or small group discussions. A presentation on the functional design was delivered followed by a group question, answer and comment session.

A total of 90 individuals signed in as attendees of the open house and public meeting. The presentation and question session portion of the event involved 62 participants.

Participants were invited to fill in and leave or send in comment sheets. A total of 25 comment forms, letters and emails were received. Copies of these are contained in Appendix A. The content is paraphrased as follows:

1. The design of the road (near the interchange on the west bank of the river) does not provide good access to industrial properties on 78 Street Crescent. There is not enough room for large trucks to turn. Also, the road design removes access directly to Riverside Drive/40 Avenue.
2. Already have drainage problems on property and do not need further drainage issues as a result of the new bridge and interchange.
3. Definitely need to route traffic; looks good and well planned.
4. Have concerns about the noise impact on houses along the west side of 20 Avenue. The first two lanes to be built should be as far east as possible to allow



the existing trees to remain as long as possible and minimize the noise of traffic and construction on the houses.

5. Good to see some action to deal with the problems other cities encounter with growth.
6. Concerned with the reduced property value and decline in quality of life for the properties backing onto 20 Avenue. Were told prior to purchasing (about 7 years ago) that 20 Avenue would not be a major thoroughfare.
7. Major expressway should not go through a residential area. The road should be built farther east near a gridline where there are not as many people living. Move it over half a mile.
8. A set of traffic lights to make it possible to get out of the Chiles Industrial park onto Highway 2A north of Highway 11A needs to be considered before closing the existing access to Northland Drive. Large trucks will not be able to exit/enter otherwise.
9. Concern with the view of the expressway from housing along the west side of 20 Avenue. Don't want to look out over a major roadway or see a wall, or berm with landscaping.
10. The ring road should be built around the city – move it over 1 mile to the east. This keeps high speed traffic out of the city. Using 20 Avenue will divide the city like Airdrie.
11. The bridge should be built for 3 lanes from the start rather than expand at a later date from 2 lanes to 3 lanes.
12. The speed limit for the expressway should be 90-100 kilometers/hour.
13. Why the push to build the road now if it was not originally slated for sometime around 2018 in the City's long term strategic plan? It is too early to be spending money on building this road.
14. There is not enough congestion in Red Deer to create a need for this road.
15. Worry that the expressway will encourage increased traffic speeds as traffic often does not slow down to 50 km/h when entering the city.
16. The traffic signals and signage along the expressway should be as clear as possible and give as much advance warning to drivers as possible given the higher speed.

17. The west side of the bridge does not provide a meaningful opportunity for wildlife to cross the road. The area is used by a road and slopes that will likely have rip-rap which large animals can not move over very easily.
18. The City needs to do more to protect connected wildlife corridors and expand the river valley park system. This includes budgeting and paying for wildlife crossing features as part of the design of Northland Drive since the alternative of not building the road will not be considered.
19. There is an unfortunate tendency for The City to not follow through on promises to preserve wildlife corridors, natural areas and trees. We expect environmentally aware practices from The City and its contractors.
20. The bridge location seems to be the best place to cross the river with the least amount of disruption. The design of the wildlife crossings on the ends of the bridge needs to be re-designed – especially the west side. A wider strip of vegetation (3-5m) between the path and river and a 6m wide median strip between the road and path would help. No vegetation should be planted on the west side of the road so wildlife is not attracted to that side.
21. Red Deer can not wait until 2017 to start taking other measures to reduce the amount of traffic going through the central part of the city. Need to direct heavy trucks to Northland Drive/20 Avenue and get them off other roads like Gaetz Avenue.
22. The residential areas east of Northland Drive/20 Avenue need to have facilities and services like shopping and restaurants to avoid future traffic problems. Hope that the same planning going into the NE sector of the city will be used in the SE sector near 20 Avenue.

MAJOR THEMES

The following major themes, outlined below, are derived from the collective input received as part of the public consultation process.

Alignment of the expressway – how was the proposed route selected and why can it not be located farther away from the existing housing; ring roads should go around cities not through the middle

Providing for pedestrians, cyclists and transit – how do pedestrians and cyclists use the expressway and how are connections between the areas on both sides of the expressway being provided; need to provide for convenient non-private automobile travel and transit routes also

Wildlife corridors – it is important that sufficient measures be taken to allow wildlife to move across the expressway especially in the river valley; more attention is needed to create workable crossings for wildlife near the river's edge and along the escarpments

Commitment to pay for offsetting measures – there are impacts on the natural areas and wildlife due to the loss of trees and creating a barrier to wildlife movements; the ways to mitigate or offset these impacts needs to be paid for as part of the road project

Process to acquire land in the future – many properties will not be affected for several years by the need to acquire land for the expressway and information on the process now (e.g. who pays for legal survey costs) will help determine if landowners wish to wait or sell their property as soon as possible

Value of properties – the ability to sell a property that has been identified as being impacted by the expressway due to land acquisition or changes to access may be more difficult and the value that can be expected may be lower; noise impacts could also decrease property values

Physical impact on properties – some properties will lose land to road needs and/or face changes in access which will impact their future use of the property and may make the current use more difficult (e.g. changed access locations and ability of large trucks to maneuver)

Noise and visual impacts and quality of life – residential properties along the route of the expressway will experience increases in the level of traffic noise and will have to look at a major roadway in their back yards

ADMINISTRATION COMMENTS ON MAJOR THEMES

The following section provides a discussion of the major themes that were raised through the course of the landowner and public consultation process. For each theme this may include a response to some of the issues, additional background and/or a solution or follow up that may be possible. The responses have been provided by the Engineering Department, Land and Economic Development, Parks Department and the primary project consultant, Stantec Consulting.

Alignment of the Expressway

The alignment of Northland Drive is the product of several studies on the overall road network and the land use planning for the city. It has been selected based on the following:

- Maintaining the roadway classification system and spacing, which the City of Red Deer has used in planning studies and their constructed roadway network for many years;
- The proposed alignment for Northland Drive along 20 Avenue is very effective at reducing traffic congestion within the City. The farther the Northland Drive alignment is shifted east of 20 Avenue the less effect it will have on reducing traffic congestion within the City of Red Deer. If Northland Drive is not located along 20 Avenue an arterial roadway would still be required along the 20 Avenue alignment to service the area as outlined in previous planning studies. For at least 20 years the Northland Drive roadway along 20 Avenue will function very similar to an arterial roadway;
- Underground services are required to supply sanitary and storm facilities to the Greater East Hill Area. These services will ultimately need to be conveyed to the Wastewater Treatment Plant and the Red Deer River. The proposed sanitary trunk will utilize the proposed Northland / 20 Avenue alignment from south of 19 Street to the WWTP and the East Hill stormwater system will discharge to the Red Deer River adjacent to the Northland Drive right-of-way. This will help mitigate tree removal and ground disturbance and thus reduce the overall effect of separate rights-of-way on environmentally sensitive areas;
- Major Altalink transmission lines (135 kv) are located approximately 800m to the east of the proposed 20 Avenue alignment which would make it very difficult to incorporate interchanges and other roadway features in the future.

The ring road alignment has been previously presented to the public in many planning documents. The Municipal Development Plan adopted in 1998 included a major roadway (arterial) along this alignment which was reclassified in the recently adopted 2008 Municipal Development Plan as an expressway. In addition, the 2005 East Hill Major Area Structure Plan included an expressway standard roadway along this alignment



which included grade separation at two intersection locations. Other non-statutory planning documents, including the 2004 Growth Study and 2003/2004 Transportation Plan Update referenced this alignment.

The proposed alignment may have small deviations from the general locations shown in the above mentioned plans to accommodate site specific issues. The portion of the alignment south of 19 Street in Red Deer County is currently involved in another study to determine the future alignment and tie-in point of the ring road. This section of roadway is subject to change pending the study results.

Providing for Pedestrians, Cyclists and Transit

This project provides an opportunity to expand upon the City's trail network as outlined within the 2005 Red Deer Trails Master Plan. A continuous pedestrian/cyclist pathway is planned to be constructed within the road right-of-way during the first phase of each consecutive construction project for the entire length of the ring road.

The trail is planned as a 3.0 metre wide asphalt trail which will accommodate both cyclists and pedestrians. The section of trail across the bridge and overpass structure will be widened to 3.5 m to provide adequate shy distance for cyclists.

A 3.0 m separation distance between the roadway and trail is typically provided along an arterial road; however, as the ring road is being designed as an expressway, this separation will be increase to 5.0 m where possible. In addition, the expressway will be constructed with a 3.0 m wide shoulder, which will ultimately provide for 8.0 m of separation between the travel lane and the edge of the asphalt trail. The proposed trail location in relation to the roadway is illustrated on the typical cross sections included within the functional design report. As illustrated on the typical cross section, a trail has been provided on one side of the roadway, however, the trail could vary from one side of the road to the other depending on safety and the most direct route required as determined during preliminary and detailed design phases.

The trail will be located within the boulevard area of the cross section at a safe distance from the roadway. As shown on the plan/profile drawings contained within the functional design report, pedestrians will be accommodated at all intersections and grade separated interchanges to allow the pedestrian/cyclist corridor to travel into surrounding neighbourhoods and future development areas. Crossing structures are also being identified at key locations to maintain continuity with the City of Red Deer park/trail system.

In addition to the trail provided along the roadway alignment, other facilities such as pedestrian and cyclist facilities have been proposed at the following key locations:

- The Waskasoo Park system is located on the west side of the River Valley, which will be traversed by the Northland Drive alignment. Large fills will be placed in the vicinity



of the existing crossing for the roadway, which will disrupt the flow of pedestrian, cyclists and wildlife. To ensure the connectivity of the Waskasoo Park system is maintained, a Wildlife/Pedestrian/Cyclist crossing corridor has been planned at the CN Rail crossing and will be incorporated into the overpass design, likely in the form of a bridge extension;

- Wildlife and pedestrian crossing movements have been accommodated at the Red Deer River bridge crossing on both the east and west sides of the river;
- Pedestrian/cyclist accommodation has been incorporated within both the at-grade and future grade separated intersection locations; and
- Two pedestrian/cyclist overpass locations are identified along the alignment to allow for east-west crossing of 20th Avenue.

During future preliminary and detailed design phases for the various segments of the expressway, a meandering trail system may be implemented to enhance the overall experience while using the trails adjacent to the roadway. Many other features, options and designs may be considered for this corridor during detailed design.

Although transit stops will not be placed on the actual expressway, transit buses will be allowed to travel on the expressway. This will provide for additional routes to service the north and east sides of the city. The expressway will provide accessibility to future trip generator/destination locations such as the future commercial centres near the 67th Street/ 30th Avenue intersection and near 20th Avenue/19th Street.

Wildlife Corridors

Maintaining continuity of the existing trails, parks, recreation areas and other environmental areas such as existing wildlife corridors is very important especially as the City develops into the future. Wildlife corridors have been incorporated into the roadway design to accommodate the movement of wildlife.

As part of the functional design process, a Terrestrial Ecological Profile was prepared. The ecological profile identifies the environmental considerations and issues applying to the project as a whole and discusses the relevance of the various issues to specific segments or locations along the proposed alignments.

Wildlife crossings will be located at strategic locations to ensure the movement of wildlife once the roadway has been constructed. Each wildlife crossing location will be designed to incorporate fencing, exit gates, etc to ensure wildlife crosses at designated locations. The Red Deer River Valley, Timber Creek and Piper Creek are examples of locations where wildlife crossing will be further considered during the preliminary and detailed design phases of the various sections of roadway.



The initial phase of the project traverses the Red Deer River valley, which is a significant wildlife corridor. Provisions will be made during preliminary and detailed design to incorporate wildlife passage on both ends of the bridge through the use of bridge extensions. The wildlife crossings under the bridge along the rivers edges (east and west sides) is dependant on the regulatory approval of the final bridge design. On the east side of the river's edge the wildlife crossing is proposed to be significant and the detailed design will include native vegetation landscaping in conjunction with the service road and park areas that are still in the concept stage. The Terrestrial Ecological Profile has also identified a need for a large wildlife underpass on the east side of the river at the base of the escarpment. This crossing is proposed to be in the form of either a large box culvert or arch structure facilitating movement below the expressway through the embankment fills. Detailed design of this crossing structure will consider native vegetation landscaping, line-of-sight through the wildlife structure, the approach on either side, and corresponding wildlife fencing to adequately funnel wildlife through the structure. In addition, concepts of maximum length vs height and width and allowance for natural light in the structure will be considered during detailed design.

During the functional design process, the Recreation, Parks and Culture Department identified a need for a pedestrian/wildlife crossing to the west of the CN Rail right-of-way to provide continuity of the Waskasoo Park system. A wildlife crossing structure along the west escarpment will be designed in conjunction with the CN rail overpass as a bridge extension to accommodate the railway, a pedestrian pathway and wildlife passage.

The wildlife structures will vary in size depending on the crossing and type of wildlife that use the particular crossing point. Wildlife fencing and mitigation measures, such as providing landscaping to resemble the natural environments, will be taken into consideration to ensure that the wildlife will properly use the structures provided for crossing.

Commitment to Pay for Offsetting Measures

A major theme that was noted throughout the public consultation component of this study was identified to be the public's desire for a commitment from the City to offset adverse impacts on natural areas, particularly treed areas, as a result of City projects. The project initially indicated that "the City is considering a 'zero net loss' concept for this roadway. Subject to budget considerations, if treed areas need to be removed for development of the expressway, trees will be planted in other areas of the city as required by Recreation, Parks and Culture". While no specific policy has been developed in this respect, Engineering Services has been working with RPC to develop a reasonable response to this public desire.

As the city grows, roadways are constructed to maintain and improve the efficiency, effectiveness and safety of the transportation network. As a result of new road



construction, natural areas are sometimes disturbed. No City policy currently exists for a project to compensate for the removal of treed areas.

With respect to the initial stage of this project, it is noted that a significant area, approximately 25 acres, of mature forest within the river valley will need to be removed in order to accommodate the road right-of-way which includes the roadway, side slopes and utility corridors.

To mitigate this impact, the project is proposing tree and shrub plantings along the road alignment. This will soften the visual impact of the roadway through the river valley similar to what was done along 67th Street adjacent to the Gaetz Lake Sanctuary. The current project budget has identified approximately \$1.6 M for potential costs associated with these landscape replacement measures.

In addition, the City is planning to purchase a large area of forested land on the east side of the river valley adjacent to the proposed Northland Drive right of way (i.e. the Northey lands) for incorporation into the City's park system. This will add approximately 50 acres of forested land to the City's Waskasoo Park system.

As previously discussed, the project is incorporating wildlife fencing in combination with wildlife underpasses to assist with wildlife migration through the river valley. The cost estimate developed during functional design has identified \$2.3 M for the wildlife crossing located at the toe of the eastern escarpment and the associated wildlife fencing. Other wildlife crossings have been incorporated into the river bridge design and the CN Rail crossing although costs for offsetting the wildlife corridor impact have not been separated out of the crossing costs due to multipurpose uses of the structures.

The Terrestrial Ecological Profile developed during the functional design has identified a variety of wetlands along the proposed alignment. Provincial legislation exists under the Water Act that promotes a reduction in loss of wetlands. The Provincial Wetland Restoration/Compensation Guide identifies a minimum 3:1 replacement of natural wetland habitat. That is, for every hectare of wetland impacted, three hectares of wetlands are to be restored within 20km of the disturbed site. Distances greater than 20 km from the site may require a higher replacement ratio. Payment for wetland compensation must be received and a mitigation plan submitted before Water Act approval is granted by Alberta Environment. Provincial and federal regulatory requirements for wetlands will be met following consultation with regulatory agencies during the preliminary and detailed design phases of each section of the roadway.

Since in-stream activities associated with the project may result in the harmful alteration, disturbance or destruction (HADD) of fish habitat, approval may be required under federal (Fisheries Act) regulations. Should the project result in unmitigated impacts to fish or fish habitat, a plan for compensation will be developed during preliminary design in consultation with the appropriate regulatory agencies (DFO and Alberta Fish and Wildlife). Compensation may occur either on-site or remote from the project site and can include habitat replacement or habitat enhancement. The type of compensation required



for this project will depend on the quality and quantity of the habitat that is lost as a result of the project and will be determined through the preliminary design process.

Compensation scenarios to be considered as the design proceeds will include developing habitat that is of equal or greater abundance in terms of quality or developing smaller quantities of habitat that is of a higher quality than the existing habitat. During the preparation of the functional design, the consultant initiated consultations with DFO and Alberta Fish and Wildlife on habitat options, at which point in time a preferred option brought forward was to enhance riparian vegetation along the Red Deer River in areas identified by Alberta Fish and Wildlife as currently requiring rehabilitation. The cost estimate developed during functional design has identified \$170K for fish habitat compensation due to the Red Deer River bridge crossing.

Process to Acquire Land in the Future

This functional planning study illustrates an ultimate roadway configuration, and provides an opportunity for the City to identify to the landowners the future right-of-way needs for the expressway for the next 25 to 30 years. The study also provides an indication of the approximate lane staging and associated timelines illustrating when the various sections of the roadway would be constructed.

As each stage of the project is developed; landowners along the proposed alignment will be contacted by the City during the preliminary design phase to arrange individual meetings to discuss the amount of road right of way required. These meetings will provide the opportunity for the landowners to acquire specific project details as they relate to their property and to discuss the financial compensation that will be offered. At the conclusion of the information exchange, the City will formulate a formal offer for each specific landowner, taking into consideration any concerns that were discussed. As the project will have short and long term effects on the landowner's property, the City and the landowner can determine an appropriate fair market value and time to acquire all the required right of way for the project that is acceptable to the respective landowners.

It is the City's intent to have the opportunity to work closely with each landowner to construct a successful and fair agreement to acquire the necessary road right of way. In the event that a mutual resolution can not be reached within a reasonable period of time, the City of Red Deer will engage a third party facilitator to ensure the project timeline is not compromised. As the City of Red Deer is the driving factor behind the Northland Drive/20th Avenue project, any appraisal fees, legal surveys and road plan registrations initiated by the City of Red Deer will be paid by the City.



Value of Properties

Each landowner along the Northland Drive/20th Avenue alignment will have varying impacts to their property and lifestyle. As part of the process of purchasing the right of way, a fair market valuation will be completed based on land and improvement values prior to any impacts the project may have. It is the intent of the City of Red Deer to purchase property well in advance of any stage of the project to ensure the fairest market value is realized.

Residential development exists adjacent to the 20th Avenue alignment along the east side of the city. It should be noted that many factors affect the value of property. Through this study we have attempted to minimize the potential impact of the expressway on the use and enjoyment of existing and future residential properties. For example, the standard berm height employed for sound attenuation on arterial roadways is 1.5 m, however, the functional design study proposes to use 2.1 m high berms adjacent to the residential areas to minimize the noise impact from the expressway traffic. These higher berms would be landscaped to provide an aesthetically pleasing buffer between the residential developments and the roadway.

With the construction of Northland Drive and 20th Avenue, many properties that currently have limited exposure to a major road system will now see the potential benefits of a growing community. As the City of Red Deer continues to grow outward, the current uses of land will change and provide for an opportunity for landowners to explore the option of developing or selling their property to accommodate the growth. The long term potential for urbanization of currently undeveloped properties adjacent to the roadway should provide for a potential higher land value in the future as access to the improved transportation infrastructure and the potential for connection into municipal utility services improves.

Physical Impact on Properties

Access is currently provided to several businesses, municipal facilities, farmland, private residences (acreages) and well sites along the alignment. Access management is a major focus of the project. With the development of a major roadway corridor access directly onto the expressway will be limited to highway, arterial and collector locations.

Through the preliminary design process for each segment of the roadway, the City will review the individual landowner's properties which are affected and develop a short term and long term plan to maintain accesses to their parcels. Discussions with all landowners will be completed during both the preliminary and detailed design and construction stages of the project to determine suitable access locations for each land owner.

Each individual business has different needs and requirements for access to their property. The proper design vehicle will be used to determine the roadway configuration



to provide adequate access to each parcel. These tasks will be carried out during preliminary design for each phase of the project.

Noting that Phase 1 of the project is being planned for completion in 2011 or 2012, the functional design drawings included for this phase include access locations to all effected parcels along the alignment. These proposed access locations will be further discussed with the affected landowners and businesses during preliminary design.

Noise Impact and Quality of Life

As part of the functional design, a noise study was completed to assess the potential noise impact of the proposed Northland Drive and 20th Avenue expressway on the adjacent residential areas. The City of Red Deer Traffic Noise Attenuation Council Policy establishes the maximum design noise level at 60 dBA Leq (24Hr) for new development areas adjacent to expressways and arterial roadways. This means that over a 24 hour period the average noise level would not exceed 60 dBA which is roughly equivalent to the noise level of a normal conversation between adults. Noise levels are measured 4.5m off of the property line or 3m from the face of a building with a receiver height of 1.5m above ground level. Sound attenuation will be implemented through all residential areas adjacent to the expressway according to The City's policy.

The noise study assumed that all intersections of the proposed roadway will be at current elevations or "at grade". The results of the study confirmed that the 2.1 m high landscaped berm proposed within the functional design will be sufficient to maintain a noise level in the surrounding residential areas below the acceptable value of 60 dBA Leq (24Hr). All intersections proposed within the functional design for both the Phase 1 and 115 K population design horizons are designed to be at-grade adjacent to residential areas.

It is noted that for the projected design horizon of 188 K population, some of the proposed intersections will be upgraded to elevated or grade separated interchanges. Along 20th Avenue, the proposed interchanges are designed with the arterial traffic movement going over the expressway traffic. Consequently, the functional design recommends that a further noise study be completed during preliminary and detailed design of the elevated interchanges to ensure that the 60 dBA Leq (24Hr) target is not exceeded. If this target is exceeded then additional sound attenuation fences or an increase in berm height may be required around the interchange areas in the future.

The 2.1 m high berms are proposed to have trees, shrubs, and other vegetation to improve the overall aesthetics of the berms and enhance the experience someone may have walking through the corridor or observing from a nearby residence.



CLOSURE

As the detailed design and construction of the Northland Drive / 20 Avenue expressway will take place over the next several years, further stakeholder consultation is recommended, as required, during each subsequent phase. This may take the form of information sessions as each major phase of the project proceeds and greater levels of detail become available. In the short term, it is recommended that The City's acceptance of the Functional Design be communicated to landowners and the general public to provide a conclusion to this segment of public consultation. The information relating to the major themes, particularly the proposed approaches to address some of the issues identified during the consultation, should also be shared with landowners and the general public. This can be accomplished through a public service announcement or notice in the local newspaper with more detailed information made available through the City website and/or the Engineering Department.

